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Ephemeris of Goujon's Comet. By M. Weyer, from his own elements, which represent the Hamburg observations of May 12 thus,—

	$\Delta\alpha$ cos. δ	$\Delta\delta$
	″	″
Calcul.—Obs. =	+4·8	+5·0

Ephemeris (for 10^h Berlin M.T.)

1849.	R.A.	N.P.D.	log. Δ	log. *r*	Light
	° ′	° ′			
May 20	168 34·7	34 42·4	9·8269	0·0658	0·428
21	168 52·0	33 52·8	·8372	·0653	·409
22	169 10·0	33 5·7	·8473	·0650	·391
23	28·5	32 20·7	·8571	·0646	·374
24	169 47·9	31 37·9	·8668	·0644	·358
25	170 8·0	30 57·3	·8761	·0643	·343
26	28·8	30 18·5	·8853	·0643	·329
27	170 50·3	29 41·4	·8941	·0643	·316
28	171 12·5	29 6·0	·9029	·0644	·303
29	35·4	28 32·4	·9113	·0646	·291
30	171 58·9	28 0·3	·9197	·0649	·280
31	172 23·1	27 29·5	·9277	·0652	·270
June 1	172 48·0	27 0·0	·9356	·0657	·260
2	173 13·5	26 31·9	·9432	·0662	·250
3	173 39·7	26 5·0	·9507	·0668	·241
6	175 2·7	24 50·2	·9720	·0691	·216
9	176 32·2	23 44·1	9·9918	0·0721	0·194

"The intensity of light $\left(=\frac{1}{\Delta^2 r^2}\right)$ supposes, as unity, the intensity at its discovery. Δ and *r* are, as usual, the distances of the comet from the earth and sun."—*Communicated by Professor Schumacher.*

SCHWEIZER'S COMET.*

This comet was discovered on April 11th, at $9\frac{1}{2}^h$ P.M., by Professor Schweizer, of Moskow, who saw it in conjunction with χ *Boötis,* and about 1° south of the star.

Professor Bond observed the comet a few hours later (see p. 128). It was discovered by Mr. Graham on the 14th. The comet had a strong, star-like, central condensation, an extensive coma, and no tail. It has been supposed to be the second comet of 1748 (No. 70), the elements of which were computed by Bessel from three imperfect observations of Klinkenberg.

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* The Editor follows the authority of Professor Schumacher in naming this comet; though, under the circumstances, he would have preferred the title of Schweizer-Bond, as recalling the facts of its discovery.

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CAMBRIDGE, U.S. Great Refractor. (Prof. W. C. Bond.)

1849.	Cambridge M.T. h m s	A.R. 1849·0 h m s	Dec. 1849·0 ° ′ ″	No. of Comp.	Star of Comp.
April 11	10 56 29	15 9 6·1	+28 33 27	8	*a*
12	7 57 58	15 3 36·3	28 20 9	5	*a*
	15 36 21	1 27·2	28 14 48	5	*a*
14	10 35 59	14 48 12·1	27 36 34	5	*b c*
17	8 48 52	14 20 40·6	25 54 23	3	*d*
19	9 8 51	13 56 38·9	24 0 59	5	*e*
21	8 24 56	13 28 20·5	21 20 9	8	*f*
24	8 49 33	12 35 11·4	15 4 58	8	*g*
	9 44 33	34 26·5	14 59 1	1	*h*
26	8 36 58	11 55 3·1	9 25 5	5	*i*
27	10 20 28	11 32 32·6	+ 5 59 3	10	*k*
May 1	10 36 46	10 11 15·6	− 7 1 48	4	*l*
2	9 36 6	9 53 54·3	9 44 28	5	*m*
10	8 47 49	8 11 17·9	−23 26 34	2	*n*

Referred to the mean equinox of 1849·0.

Mean Places of Stars of Comparison for 1849·0.

		R.A. h m s	Dec. ° ′ ″	Mag.	
a	B.Z. 366	15 6 23·25	+28 30 5·3	8·9	Star double, *nf* used.
b	,, 366	14 48 7·66	27 25 9·5	9	By intermediate star, 13th mag.
c	,, 366	14 51 39·77	27 25 25·7	8	
d	,, 462	14 16 16·33	26 1 29·9	7	
e	,, 412	13 59 19·81	24 6 46·3	8	
f	,, 460	13 27 28·03	21 25 18·4	9	Mean with H.C. 25118.
g	,, 360	12 37 49·79	15 11 35·5	8	
h	,, 360	12 34 26·48	14 59 21·1	9	Comet 20″ from the star.
i	B.A.C. 4072	11 57 31·10	9 34 17·7	3	By an intermediate star.
k	Weisse 573	11 32 43·06	+ 5 58 37·1	8	Mean with H.C 22110.
l	H.C. 20153	10 15 44·05	− 7 0 45·6	8	By an intermediate star.
m	B.Z. 217	9 54 44·82	9 42 19·8	8	
n	B.A.C. 2827	8 18 33·01	−23 33 31·2	6	

"The comet has usually presented an apparently solid but very minute central point, admitting of accurate observation."

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PULKOWA. **(M. Otto Struve.)**

1849.	Pulkowa Sid. T.	R.A.	Par.	Dec.	Par.
	h m s	h m s		° ′ ″	
April 17	11 59 50·7	14 23 7·04	—·0219 P	+26 4 8·7	+·597 P
19	15 23 49·3	13 57 56·51	+·0135	24 7 26·9	·597
23	11 57 40·7	12 58 21·75	—·0095	17 59 38·6	·672
26	12 38 41·5	11 59 25·41	+·0058	10 3 42·4	·764
27	12 36 52·2	11 38 35·72	·0086	6 54 49·0	·799
28	12 43 37·5	11 17 29·61	·0125	3 36 5·3	·833
29	13 48 58·6	10 55 45·31	·0231	+ 0 6 47·3	·863
May 1	14 0 34·6	10 15 59·28	+·0278 P	— 6 17 19·1	+·890 P

On May 1 the comet was compared with a star the place of which was taken from B.A.C. and Bessel's zones; for the previous days the stars of comparison have been determined by meridian observations. M. Otto Struve saw the comet with the naked eye as bright as 4·5 mag. star.

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

1849.	Greenwich M.T.	R.A.	N.P.D.	Star.
	h m s	h m s	° ′ ″	
April 26	11 16 4·4	11 56 52·53	80 18 34·7	4168 B.A.C.
,,	13 28 49·0	54 57·34	80 35 37·1	4114 ,,
28	11 38 25·2	14 32·14	86 51 37·0	3900 ,,
,,	11 53 43·1	11 14 18·99	86 53 51·6	— ,,

"Corrected for refraction and parallax. The horizontal parallax is taken from Mr. Graham's ephemeris. The comet had a well-defined nucleus of about 2″ diameter, surrounded by a strong nebulous light, and no tail could be seen."

HAMBURG. **(M. Rümker.)**

1849.	Hamburg M.T.	R.A.	Dec.
	h m s	h m s	° ′ ″
April 20	11 7 35·4	13 44 54·91	+22 57 40·1
23	10 43 9·7	12 56 41·57	17 47 28·6
24	9 52 43·8	38 43·27	15 32 4·5
25	9 26 37·4	12 19 27·35	12 56 37·4
29	10 5 5·9	10 55 38·24	+ 0 5 50·0

BERLIN. **(Dr. Galle.)**

1849.	Berlin M.T.	R.A.	Dec.
	h m s	° ′ ″	° ′ ″
April 23	10 46 37	194 12 2·6	+17 48 36·9*
26	9 51 39	179 42 53·5	9 58 45·4
27	9 17 3	174 36 46·1	+ 6 53 23·4

Elements.

	M. Hensel (Leipsic).		Dr. Luther.	
T.	1849, June 8·21239, Berlin M.T.		1849, June 8·21067, Berlin M.T.	
	° ′ ″		° ′ ″	
π	267 4 22·8	Mean Eq. 1849·0.	267 4 12·91	Mean Eq. 1849·0.
☊	30 31 51·1		30 31 49·74	
i	66 57 56·9		66 57 32·16	
Log. q	9·951550		9·9515556	

Motion direct.

* This observation is corrected.

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Dr. d'Arrest has calculated elements on the same observations, and finds no sensible difference from M. Hensel's elements, which represent the observations nearly completely.

M. Hensel's elements are deduced from the corrected observations of Mr. Graham, April 14; Dr. Petersen, April 20; Dr. Galle, April 16. Dr. Luther has calculated his elements on the observations of April 14, 20, 26, not taking parallax into account.

	Parabolic, J. D. Runkle.		Hyperbolic, G. P. Bond.	
Perihelion Pass.	June 8·18828, G.M.T.		June 6·7547, G.M.T.	
	° ′ ″		° ′ ″	
Long. Per...	267 3 33	Mean Eq. 1849·0.	265 17 43·5	Mean Eq. 1849·0.
,, Node.	30 32 53		30 21 6·3	
Inclination..	66 54 10		68 14 40·2	
log. Per. Dist.	9·9513114		9·9557110	
	Motion direct.		Eccentricity 1·0670345	Motion direct.

"It is to be hoped that observations after the perihelion may be obtained, to determine whether there be a decided eccentricity to the orbit. The above hyperbola deviates about 1′ 30″ of arc from the observation on May 10th. (*From Professor Bond.*)

"We obtained a place of a star of the 12th mag., supposed to be *Metis*, April 12th, $16^{h}\,26^{m}\,22^{s}$, Cambridge M.T.

R.A. $21^{h}\,27^{m}\,32^{s}\cdot97$ } Mean Eq.
Dec. $-19^{\circ}\,2'\,22''\cdot9$ } Jan. 1st, 1849.

"It has been observed two or three times since, but with great difficulty in distinguishing it from fixed stars of the 12th and 13th magnitudes."

Ephemeris. By Dr. Luther. From his own Elements.

Berlin Mean Noon.

1849.	R.A. ° ′ ″	Dec. ° ′ ″	Log. Δ
April 8	231 56 51·9	+29 6 44·5	9·707595
12	226 48 3·3	28 28 55·4	·630195
16	219 11 27·0	26 51 33·3	·542472
20	207 52 34·9	23 34 0·9	·446923
24	191 40 6·7	16 33 39·4	·357808
28	171 22 16·0	+ 4 52 31·0	·312269
May 2	151 18 24·6	− 7 58 44·1	·342196
6	135 26 22·4	17 17 51·5	·422728
10	124 10 0·4	22 51 13·8	·513826
14	116 14 4·4	−26 6 33·8	9·598063

On calculating the Moon's Place for Ephemerides.

By S. M. Drach, Esq.

In this paper (read at the last April meeting) the author shews that by a modification of Burckhardt's method the lunar coordinates are obtainable with a less degree of labour and number

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of equations; for this purpose adding the sexagesimal equations in seconds to the argument of the next inequality, the circumference of which is divided into 16,000,000 parts. The arguments are likewise increased by twice or thrice the annual equation, which, if attended to by Burckhardt, would have removed some of his principal 32 small equations, allowing several of them to be condensed into one table of double entry. As the paper chiefly consists of algebraical formulæ and numerical calculations, it could be only *announced* to the meeting.

On the Determination of the most probable Orbit of a Binary Star from the assemblage of a great number of observed Angles of Position. By Sir J. F. W. Herschel, Bart. *With some Remarks by the President on a Solution of the same Problem by M. Yvon Villarceau.*

In this paper Sir John Herschel refers generally, for the principle of his method, to a paper published by him in the fifth volume of the *Memoirs* of this Society, the paper (we may remark) in which was given an exposition of the principles by which the orbit of a double star was for the first time actually determined. He now states his conviction that the method there expounded is, on the whole, the best that can be employed; and the object of the present paper is, retaining the original principle (namely, of using only the measured angles of position, and rejecting entirely the measures of distance), and retaining the first step of the original method (namely, of smoothing down the irregularities of the angles as measured, by laying them down graphically, the angles for abscissæ and the corresponding times for ordinates, and then drawing a curve by hand through the points so found, and using that curve as the representation of the real relation between the angles and the times, and measuring from it the times corresponding to angles which differ by 5°, or by 10°, or any other convenient difference); retaining the original method thus far, to complete the investigation by a process entirely algebraical and arithmetical.

Supposing the times corresponding to equal intervals of angle to be taken from the curve above mentioned, the next thing required is $\frac{dt}{d\theta}$ for every 5° or every 10°, &c. This is to be found by the following formula, which requires for application only the finite differences of t for the equidistant values of θ,

$$\frac{dt}{d\theta}=\frac{1}{\Delta\theta}\left\{\frac{\Delta t}{1}-\frac{\Delta^2 t}{2}+\frac{\Delta^3 t}{3}-\&c.\right\}$$

The next step is, to infer from this the true apparent distance of the stars, as it ought to be measured by a perfect micrometer or measuring instrument. Now every determination of an orbit of double stars proceeds on the assumption of an attraction between the two components, and this requires the supposition of descrip-